

We claim:

CLAIMS

1. A digital audio system, comprising:
 - a receiver coupled to a radio frequency modulator;
 - a source signal modulated by the radio frequency modulator to provide a modulated signal; and
 - an external antenna for receiving the source signal and for transmitting the modulated signal.
2. The digital audio system of claim 1, wherein the receiver is a satellite radio receiver and the radio frequency modulator is an FM radio frequency modulator.
3. The digital audio system of claim 1, wherein the digital audio system further comprises a coupling network coupled between the receiver and the external antenna and between the radio frequency modulator and the external antenna.
4. The digital audio system of claim 3, wherein the coupling network creates a short circuit for higher frequencies received and lower frequencies transmitted and an open circuit for lower frequencies received and higher frequencies transmitted.
5. The digital audio system of claim 4, wherein the coupling network creates the short circuit for satellite signals received and FM radio frequencies transmitted and the open circuit for FM radio frequencies received and satellite signals transmitted.

6. The digital audio system of claim 1, wherein the digital audio system further comprises an internal antenna coupled to the radio frequency modulator for radiating the modulated signal via a second path.

7. The digital audio system of claim 6, wherein the digital audio system further comprises a series of attenuators and low pass filters coupled to the radio frequency modular and a splitter for splitting the modulated signal between a first path toward the external antenna and the second path toward the internal antenna.

8. The digital audio system of claim 6, wherein the digital audio system further comprises a tuning network for tuning the modulated signal coming from the internal antenna.

9. The digital audio system of claim 6, wherein the digital audio system is a satellite digital audio radio system for a vehicle wherein the external antenna is placed outside the vehicle and the internal antenna is placed inside the vehicle.

10. The digital audio system of claim 1, wherein the receiver is selected from the group comprising a satellite digital audio radio, an MP3 player, a digital FM radio receiver, and a digital AM receiver.

11. A satellite digital audio radio system, comprising:

a satellite receiver coupled to a radio frequency modulator;

an external antenna for receiving a satellite source signal and for transmitting a modulated signal; and

a coupling network coupled between the satellite receiver and the external antenna and between the radio frequency modulator and the external antenna.

12. The satellite digital audio radio system of claim 11, wherein the coupling network creates a short circuit for satellite signals received and FM radio frequencies transmitted and an open circuit for FM radio frequencies received and satellite signals transmitted.

13. The satellite digital audio radio system of claim 11, wherein the satellite digital audio radio system further comprises an internal antenna coupled to the radio frequency modulator for radiating the modulated signal via a second path.

14. The satellite digital audio radio system of claim 13, wherein the digital audio system further comprises a series of attenuators and low pass filters coupled to the radio frequency modulator and a splitter for splitting the modulated signal between a first path toward the external antenna and the second path toward the internal antenna.

15. The satellite digital audio radio system of claim 13, wherein the satellite digital audio radio system further comprises a tuning network for tuning the modulated signal coming from the internal antenna.

16. The satellite digital audio radio system of claim 13, wherein the satellite digital audio radio system is for a vehicle wherein the external antenna is placed outside the vehicle and the internal antenna is placed inside the vehicle.

17. A method of wirelessly coupling a source signal to a radio frequency receiver in a vehicle, comprising the steps of:

modulating the source signal to provide a modulated signal; and

splitting the modulated signal between an external radiating element and an internal radiating element.

18. The method of claim 17, wherein the step of splitting the modulated signal comprises creating isolation between the external radiating element and the internal radiating element.

19. The method of claim 17, wherein the method further comprises the step of receiving the source signal and transmitting the modulated signal via the external radiating element.

20. The method of claim 17, wherein the method further comprises radiating the modulated signal via the external radiating element and the internal radiating element and receiving the modulated signal at an FM radio receiver.